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ABSTRACT

This paper suggests ways of structuring the content of feedback experimentally to test hypotheses of interest. Use of the feedback process in this manner suggests a variety of research and intervention tactics, many of them unexplored and some of them implying ethically questionable conduct. Consideration of this question also helps illuminate the potential conflict that exists between the ends of research and those of the client. It is suggested that problems of this nature are endemic to projects which combine basic research and intervention-improvement goals. (Author)

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USE AND IMPLICATIONS OF THE FEEDBACK PROCESS IN RESEARCH DESIGN

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During a long term intervention study (like SECSI at |I|D|E|A|), the researcher is usually obligated to provide information to the subjects and/or system under study based upon some previous performance. This information or feedback can profitably be incorporated into the research design such that variations in the feedback along well-defined dimensions can be potentially related to variations in other variables of interest. The remainder of this paper will briefly consider: 1) the relationship of the feedback process to the independent and dependent variables in experimental design and, 2) some methodological implications resulting from experimental feedback intervention in on-going systems.

It is usually the case that the variables involved in any given experimental design can be divided into two classes: (1) independent, or the variables being experimentally manipulated and, (2) dependent, or the variables being affected by, and measured after said manipulation. Conceptualizing feedback as an independent or dependent variable is an important first step in incorporating feedback as a variable in research design. After taking this first step, we found that feedback could not be conceptualized as a dependent or independent variable. We found the exercise to be most important in that it served to elucidate some primary definitional problems with respect to the term feedback -- problems which are easily

over-looked and only lead to semantic entanglements. Most importantly, we finally lost the struggle to conceptualize feedback as anything other than a process and not as a variable per se. Although we will attempt to deal with feedback as a "statistical" variable as rigorously as would appear to be meaningful, we are most concerned with emphasizing differentials in purpose of feedback as related to the research design rather than the nomenclature of independent versus dependent variable. We find it most profitable to discuss these differentials in purpose of feedback using illustrative research designs; furthermore, we find it most useful to draw upon our research activities at |I|D|E|A| since these experiences motivated our thinking of feedback as a research variable.

For example, the SECSI study at |I|D|E|A| is attempting to promote a social structure among a set of elementary schools which will facilitate the process of dialogue, decision-making, and action among the members of any given school staff. It may often be the case during intervention strategies such as this to feed back results in different ways to different experimental units for the expressed purpose of looking for differential results in behavior at some later point in time. More specifically, suppose our experimental units are school faculties and we are interested in the "dialogue, decision-making, and action capacities" of each faculty. We construct a test to measure "DDA" and administer it to all the school faculties. We then randomly divide the 18 schools into two groups of nine each. We report the results of the DDA mean scores to each of the schools in one of these groups (the "feedback" group) but not to those of the other group (the "no feedback" group). At the end of the semester we retest on DDA and compare the two groups.

There are a host of experimental design problems associated with the content of this example. One thing should be clear, however, and that is that feedback has been related to an independent, experimentally manipulated variable. By feedback we mean the general process of feeding back information; if the independent variable in the above example were to be explicitly defined, it would not be feedback per se but the "amount of DDA test results fed back to school staff" -- a dichotomous variable taking on the values "all" or "none".

We can also conceptualize the role of feedback in relation to the dependent variable in experimental design. In all experimental situations, the dependent variable is some psychological or behavioral construct (like achievement, attitude, etc.) which is measured (i.e., inferred) from the experimental unit's response to some standardized set of stimuli (e.g., test items). In other words, the dependent variable is neither the test nor the response to the test but the inference we make with the response to the associated underlying psychological continuum. With these distinctions in mind, an analogy is offered between the use of feedback as a stimulus (or set of stimuli) in the same sense as are items on a test of achievement or attitude.

Going back to the previous example, it is clear that, as stated, the dependent variable is the construct DDA. But suppose we did not wish to compare the feedback - no feedback groups on the basis of DDA. Suppose, instead, we wished to compare them on some reaction to their DDA scores like, for example, "defensiveness" as measured by some Likert-type attitude scale. In this situation, feedback (like items on a test) serves to elicit responses on the desired dependent variable continuum of interest.

It should be emphasized that in the first example, feedback was used differentially with respect to different experimental units. In the second situation, feedback was given consistently to all experimental units regardless of treatment. The purposes for feeding back information in each case are clearly different -- we wish to emphasize this difference in purpose for using the feedback process rather than the nomenclature of independent versus dependent variable.

Implementing the process of feedback in research design is a simple decision that raises some complex problems. When the feedback process is an intrinsic part of an experimental design, the researcher must be aware of certain traditional methodological issues as well as those that emerge from the characteristics of a specific project. Traditional issues concern (1) Who is to give feedback? (2) In what form is it to be given? (3) When and in what setting is it to be given? (4) To whom is it to be given? Assuming feedback is to be used in conjunction with a treatment variable and to be followed by a period of measurement or observation of effects, the choice among alternatives for structuring feedback will influence the outcome. To be meaningful, the researcher must answer the above questions, implement his decisions in terms of the design of feedback, and apply it in standard fashion to all units. If this is done consistently, feedback can be related to observable outcomes, assuming other sources of variation have been controlled or eliminated.

This fall, the SECSI staff designed a feedback package based on the major problems identified by school staffs during spring, 1970. The content and format were standardized so that we could measure two outcomes: DDA and orientation

toward the League. A role-playing session was held to simulate the feedback situation in a school. The session and further staff discussion brought out several problems. Although the package was good from a research standpoint, its structure limited the amount of useable information it gave to the school staff. The SECSI project combines both research and school improvement goals and some felt that research was being maximized at the expense of providing information that would facilitate school decision-making and problem-solving processes. In addition, use of the outside expert (i.e., a SECSI staff member) as the communicator seemed inconsistent with our endeavors to lead school people to view and use one another as experts. The question of valid observation was also raised. Would we observe an atypical process, i.e., response to the expert and not to the information? Using the principal as communicator would make the feedback situation more realistic since giving information to staff is a normal part of the principal's role. However, our decision to use the principal as communicator introduced his leadership and personal style as a source of variability (among others) whose effects on response to the "treatment" could only be controlled and measured ex post facto. That is, the cost for improving the utility and realism of the feedback process was in terms of reducing treatment standardization in the research design. Solving one problem raised another, a recurring situation in multi-goal projects such as SECSI.

Emergent issues are those which arise when project characteristics require consideration of the feasibility and/or desirability of various methods. The treatment - no treatment design is standard experimental practice. One can also vary the elements of a treatment across units to test for differential effects. A number

of alternatives are available for structuring feedback to test specific hypotheses. Basic to all experimental design is random assignment to treatment groups and no interaction between subjects in different groups. Considering the latter point first, how can this condition be met when a major project goal is to promote interaction among members? Many SECSI interventions and activities are designed to foster intra- and inter-school communication. If different "feedback-related" treatments are applied, assessing effects is difficult given possible contamination due to subject interaction which we ourselves encourage! In addition, interaction alerts subjects to the fact that they are not receiving the same information. If people feel manipulated and come to distrust the researcher, it could shatter a once-good relationship, and even lead to their withdrawal from the project. This is the main reason that desirability as well as feasibility of methodological alternatives must be considered.

A critical aspect of projects dealing with social experimentation and change is examination of the consequences of various methodological choices. Should the researcher manipulate feedback-related variables for research purposes when it is also intended to serve ameliorative purposes? What are the consequences of various strategies for maintenance of trust and rapport between researchers and clients? Do clients as "subjects" have any legitimate right to knowledge of the research design?

Laboratory researchers are beginning to raise serious questions about the ethical implications of using various techniques for research with human subjects. Ethical problems become highly salient in on-going field studies which combine research and improvement objectives. If feedback is valuable information then

withholding it from some and giving it to others as a test of its effects is a questionable practice. Amount of feedback on some variable as a treatment can be manipulated in various ways, all of which are legitimate on grounds that knowledge is produced or enhanced. It can also be argued that the quality of knowledge is directly related to its value for the client. The point to be made here is that methodology is not neutral. The researcher, particularly in an on-going field situation must be aware not only of the ethical implications of his methodological choices, but also of the consequences of such choices for maintaining the research relationship and the commitment he has made to serve his clients.

Kelman (1969:584) notes that "even under the most favorable conditions manipulation of the behavior of others is an ethically ambiguous act." The work of the behavioral scientist like that of the nuclear physicist requires that he "be concerned with the nature of the product(he is) creating and the social process to which (he is) contributing" (Kelman, 1969:583). A planned change project involving intensive researcher-client interaction introduces another dimension. Regarding the manipulation of behavior, how knowledge is gathered becomes as important as its potential uses. While the researcher and his clients may have rapport and collaborate in the change effort, the values guiding behavior and the ends sought by each can never be wholly compatible and mutually reinforcing. The potential for conflict is increased when basic research and intervention into the client system are fused in one project (Smith, et. al., 1960). Projects of this type have two primary goals:

1. research on processes of behavioral and/or organizational change which

are of theoretical interest to the researcher in building the body of knowledge of his particular discipline.

2. collection and application of such knowledge to alter or improve the functioning of the client system.

The possibilities for conflict between these two goals have been examined using the feedback situation as an example.

When the feedback process is part of the research design, its function is expanded beyond that of simply giving information to the client system. The researcher uses feedback content in a more or less controlled manner allowing him to observe how, why, or in what direction the system does or does not change in response to this input (Argyris and Taylor, 1960). Such information can have theoretical as well as diagnostic value: it broadens knowledge of social processes in general, and illuminates particular workings of the system(s) under study.

Using schools as research sites, the type and content of feedback can, in theory, be structured so the researcher can compare and contrast its effects on the various units. A problem arises when one asks to what extent such uses of feedback violate the commitments of change agents to collaboration, effective change, and power equalization (Bennis, et. al., 1969: 580). Maximizing both theoretical and practical outcomes in one research design is possible but operationally unlikely. Methodologically, to design and assess the effects of treatments requires a degree of control often unreachable given differences among units (i.e., 18 schools) and the particularistic nature of their needs and problems.

References

Argyris, Chris and Graham Taylor.

1960 "The member-centered conference as a research method." Pp. 389-407 in Richard N. Adams and Jack J. Preiss (eds.), Human Organization Research: Field Relations and Techniques. Homewood, Illinois: The Dorsey Press.

Bennis, Warren G., Kenneth D. Benne and Robert Chin (eds.)

1969 The Planning of Change (2nd ed.). New York: Holt, Rinehart and Winston, Incorporated.

Kelman, Herbert C.

1969 "Manipulation of human behavior: an ethical dilemma for the social scientist." Pp. 582-595 in Bennis, et. al. (eds.), The Planning of Change (2nd ed.). New York: Holt, Rinehart and Winston, Incorporated.

Smith, Joel, Francis M. Sim, and Robert Bealer.

1960 "Client structure and the research process." Pp. 41-56 in Richard N. Adams and Jack J. Priess (eds.), Human Organization Research: Field Relations and Techniques. Homewood, Illinois: The Dorsey Press.